

Response to Official Communication
Sept. 9, 2002

Reference: Application No. 09/973095 Applicant: Jerry Chi Wang Date of Communication: 8/19/02
Title of Invention: Effluent Discharge System Facilitates Discharge of Sediments, and Powering of Underwater Machinery

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The applicant writes in response to the official communication relating to election/restriction on his patent claims. The applicant disagrees that restriction to any of the three claims is applicable according to the patent statutes and hereby submit s responses in support of his contention.

1. In Item No. 3 of subject communication, Examiner states "In this case the apparatus as claimed can be used to practice another and materially different process, such as in the transport of fish or other aquatic life". Applicant submits that the apparatus can not be used to practice another and materially different process as suggested as elaborated below:
 - a. The primary prerequisite for using the apparatus for transport is that the material must be fluidized in the carrier water flow in such a manner that the fluidized mass (sediment particles entrained in the carrier water) will behave like a fluid. In such manner the suspending particles will flow with the carrier water through the apparatus and be transported. Fish swim on their own power and are not in a fluidized state as such while swimming. In fact, fish can swim against water flow or current. It is not even feasible to direct fishes to willingly entering the intake port of the apparatus. Even if someone does find a way to force the fishes into the intake port, there is no way to direct the fishes to space out evenly so as not to jam up in the pipeline or to swim backward. The apparatus is therefore not workable for the suggested example of transport fish or other aquatic life.
 - b. The apparatus could be used to transport ground fish meal which can be fluidized just like any sediments. But then it is essentially the same process as claimed. The sediments in this case are simply fish meal.
2. In applicant's opinion, no restriction would be applicable for the apparatus of Claim 1 and the process of Claim 2 as the process is facilitated and depends on the apparatus for its practice. Or in other words, the apparatus is the means for practice the process.
3. In Item No. 4 of subject communication, Examiner states "In this instant case the different inventions of Groups II and III could not be used together, since the sediments being removed would clog/damage the fluid drive assembly set forth in Group III". Applicant submits that the assessment is arbitrary, presumptuous, and is not substantiated as elaborated below:
 - a. The invention of Group II, which is a component of the Group III fluid drive assembly, is predicated upon that the materials to be transported are of particle sizes fluidizable in the carrier water at certain selected operating water velocity sufficient to carry them through the pipeline. Sediments or materials larger than that can be fluidized and entrained at the selected carrier water velocity, therefore, would not and could not

be picked up by the inflow water to enter into the intake of the fluid drive assembly. . This precludes the possibility of having large chunks of sediments the chance of entering the fluid drive and the pipeline. Further, in the fluid drive assembly of Fig. 4 example, the water intake is kept at some distance above the auger head. This distance between the auger head and the intake port allow dilute clear water to be mixed with the more concentrated fluidizing mass to keep sediments concentration of the inflow fluid well below the maximum transportable limit (typically 35% for fine sands and pebbles) for each application environment. In operation, the whole assembly is supported by some support such as the cable support mechanism as shown in Fig. 3 to keep the auger head from digging into any spot but rather to work more like an agitator to stir up sediments. Sediments stirred up by the auger are largely thrown outward tangent to the rotating edges of the auger blades. The up-flow water only picks up the fluidized sediments being entrained and not any large aggregates. In the operation of a system, such as that shown in Fig. 3, the up-flow water velocity around the auger head is kept within a predetermined range such as not to pick up particles larger than desired by simply adjusting the elevation height of the discharge port or by installing an optional throttle valve in the pipeline. From above, it is quite evident that no large bulk of sediments or large chunks of sediments could enter the intake port to clog or to damage the fluid drive assembly.

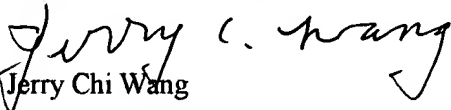
- b. The fluid drive mechanism consists of just a simple propeller, a shaft and bearings, and bearing supports. There is no small restriction or mechanism that can get clogged or damaged by flowing water with entrained fine sediment particles.
- c. The preceding descriptions on the operation of the Claim 3 invention clearly demonstrate that the inventions of Group II and Group III can work together in concert and in coordination as a system to accomplish the task of removing sediments from deep reservoirs. The different function and different effect of two different inventions jointly provide the process functions and steps needed to accomplish the overall task in a most efficient and effective manner. As such, the restriction is therefore not applicable

- 4. In Item 7 of subject communication, Examiner refers Figs. 2a, 2b, 2c, and 2d as distinct species to require an election of a single species. Applicant submits that these figures show obvious variations of the generic claim and not patentably distinct species as elaborated below:
 - a. Claim 1 is a generic claim of the apparatus defining the limitations and qualifications of the apparatus and its components. No patentably distinct species are presented.
 - b. Figs. 2a, 2b, 2c, and 2d show schematics of different pipeline layout or routing of the apparatus for four application cases. Piping routing variations are obvious and are not patentably distinct, one from the other. Otherwise, there could be uncounted numbers of species just by making a turn in the pipeline or with somewhat different piping layout.
 - c. These figures do show that the effluents are discharged to different type of receptacles. The apparatus begins with the fluid intake port and ends at the discharge port. The receptacle is not a part of the apparatus and is not an issue for the invention. Also shown are intake port of reducer shape and plain pipe end type,

and a valve in the pipe. Shape variants of the intake port and pipe line accessories for convenience are obvious as recited in the second paragraph on Page 4 of the application. No special limitation is added in any of these species.

- d. The generic claim, Claim 1, embraces all the limitations and qualifications of each apparatus shown in these four figures; and each apparatus of different piping layout shown contains all the limitations and qualifications of the generic claim. It is obvious that not one is patentably distinct from the other or is patentable over each other.
 - e. As there is no patentably distinct species presented, no species restriction should be applicable and election of a single species would not be necessary.
5. Notwithstanding applicant's contention to the restrictions, **provisional elections** are made below to accord with the procedural requirement:
- a. **Primary Election** Claim 2, drawn to a **METHOD OF DISCHARGING RESERVOIR SEDIMENTS**, is elected as the primary invention for prosecution.
 - b. **Species Election** The apparatus shown in Fig. 2a is elected.

Respectfully submitted,


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Applicant and Inventor

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